IN THE CLAIMS

Please cancel claims 4-11 without prejudice.

REMARKS

The Claim Amendments

Applicants have canceled claims 4-11 without prejudice. Claim 1 is now pending. Applicants expressly reserve the right to pursue canceled or deleted subject matter in subsequent applications claiming priority herefrom.

Applicants request reconsideration of the above-identified application in view of the foregoing amendments and the following remarks.

The Restriction Requirement

The Examiner has required restriction of the claims of this application under 35 U.S.C. § 121 into one of the following three groups:

Group I: Claim 1, drawn to an isolated polynucleotide;

Group II: Claims 4, 6, 8 and 10, drawn to genetically engineered plants and plant cells having enhanced expression of a polypeptide; and

Group III: Claims 5, 7, 9 and 11, drawn to genetically engineered plants and plant cells having reduced expression of a polypeptide.

The Examiner asserts that the inventions encompassed by Groups I-III are directed to different products having different structures and functions, which constitute

patentably distinct inventions. The Examiner states that the invention of Group I has been constructively elected because applicants previously received an action on the merits directed to the invention of Group I. The Examiner withdrew claims 4-11 from consideration.

Applicants note that the constructive election of Group I is expressly without waiver of their right to file for and obtain claims directed to the non-elected subject matter in divisional or continuing applications claiming priority and benefit herefrom, or from a related application, under 35 U.S.C. § 120.

The Rejection Under 35 U.S.C. § 101

The Examiner has rejected claim 1 under 35 U.S.C. § 101 as lacking either a substantial asserted utility or a well established utility. Specifically, the Examiner contends that the specification does not provide guidance or evidence that the polypeptide of the invention controls a signal transduction system for brassinosteroid hormone. The Examiner states that the involvement of the polypeptide encoded by the claimed polynucleotide may be at any number of positions in a complicated pathway. The Examiner also states that further experimentation would be necessary to confirm the activity of the claimed polynucleotides in plants. The Examiner states that gene expression or co-suppression in plants by genetic transformation is highly unpredictable and the resulting phenotypic characteristics cannot be reliably predicted. Applicants traverse.

The Examiner's contention that the polypeptides may be involved at any number of positions in the complicated brassinosteroid hormone response pathway is inapposite. Applicants have demonstrated that disruption of the expression of the

polypeptide recited in claim 1 results in dwarf plants (Examples 2 and 3), that the corresponding gene is expressed in a variety of plant tissues (Example 4) and a lack of response in strains with a mutation in the gene to a brassinosteroid hormone known to be involved in signal transduction in plants (Example 6). Accordingly, the Examiner acknowledges that based on the disclosure of the instant specification it is reasonable to conclude that the polypeptide encoded by the claimed polynucleotide has some functionality in the response of rice plants to brassinolide.

Contrary to the Examiner's assertion, applicants need not further demonstrate how the polypeptide affects any particular pathway or phenotype. *See, e.g.*, *Newman* v. *Quigg*, 877 F.2d 1575, 1581, 11 USPQ2d 1340, 1345 (Fed. Cir. 1989) ("[I]t is not a requirement of patentability that an inventor correctly set forth, or even know, how or why the invention works."); *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1469 (Fed. Cir. 1999) ("[S]tatements that a physiological phenomenon was observed are not inherently suspect simply because the underlying basis for the observation cannot be predicted or explained."). Thus, applicants demonstration that the polypeptide does have an affect on the response to brassinosteroid hormone and that lack of expression of the polypeptide results in dwarf plants satisfies the requirement of 35 U.S.C. § 101.

The Examiner's contention that methods of gene expression or co-suppression in plants and the resulting phenotypic characteristics are unpredictable also is inapposite. One of ordinary skill in the art would recognize that the polynucleotides encoding the polypeptide recited in instant claim 1 are readily used to produce plants with altered phenotypes. For example, the application demonstrates that reduced expression of

the polypeptide results in dwarf plants (Examples 2 and 3). The use of the polynucleotides of the invention to reduce the expression of the polypeptide in a plant cell by, for example, co-suppression is a well known, reliable technique that is widely used to genetically engineer plants. See, e.g., WO 90/01690 (Jorgensen et al.) and United States Patent 5,034,323 (Jorgensen et al.), which describe methods of co-suppression in plants.

Further, success in modification of gene expression or of phenotypic characteristics in plants by genetic transformation is not highly unpredictable, as evidenced by the art at the relevant time that a significant percentage of plants transformed with a polynucleotide exhibit altered phenotypes as a result of co-suppression. For example, United States Patent 5,034,323 describes various experiments where plants exhibited altered phenotypes (e.g. Example 2 shows 6 of 6 plants had novel phenotypes, Example 3 shows 5 of 14 had novel phenotypes and Example 4 shows 7 of 37 had novel phenotypes). One skilled in the art could readily screen this population of plants to identify one or more with a desired phenotypic trait, such as dwarfing.

For all of the foregoing reasons, the claimed invention has a specific, substantial and credible utility.

The Rejection Under 35 U.S.C. § 112, First Paragraph

The Examiner has rejected claim 1 under 35 U.S.C. § 112, first paragraph, as lacking either a substantial asserted utility or a well established utility. Specifically, the Examiner states that the disclosure is insufficient to teach one of skill in the art how to use the invention. The Examiner contends that undue experimentation would be required by the skilled artisan to use the invention. Applicants traverse.

As described above, the present invention can be used to produce plants with altered responses to brassinosteroid hormone, for example, by producing plants with reduced expression of the polypeptide due to co-suppression. Methods of co-suppression are well known in the art and no more than routine experimentation is required to produce plants that have altered phenotypes. The exact phenotypic trait desired, e.g. extent of dwarfing, is a matter of choice for those skilled in the art which can be readily obtained by routine screening of plants transformed with the claimed polynucleotide. Thus, one skilled in the art would reasonably expect to be able to use the claimed polynucleotide to genetically engineer plants.

Conclusion

For the reasons presented above, applicants request that the Examiner allow claim 1 to issue.

Respectfully submitted,

James F. Haley, Jr. (Reg. No. 27,794)
Stanley D. Liang (Reg. No. 43,753)
Attorneys for Applicants
Grant Kalinowski (Reg. No. 48,314)
Agent for Applicants

FISH & NEAVE
Customer No. 1473
1251 Avenue of the Americas
New York, New York 10020-1105
Tel.: (212) 596-9000
Fax: (212) 596-9090